The Antique Radio Gazette

OFFICIAL PUBLICATION OF THE ANTIQUE RADIO CLUB OF AMERICA

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The Grebe Story

written by

Jack Gray

The CR-13

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It is our intention to have the Gazette published as closely as possible to the following dates:

March 31 — June 30
September 30 — December 30

The closing dates for receiving material of all kinds in order to have it appear in the next issue would be: February 15 — May 15
August 15 — November 15

The Antique Radio Gazette is published quarterly in Madison, Connecticut.

Yearly dues of $12.00 U.S. currency are payable to ARCA January 1, of each year for members in the USA, Canada, and Mexico. Overseas dues are $14, which includes airmail postage.

The Antique Radio Club of America was incorporated in the State of Kentucky, in September, 1972. The first meeting was held at the Marriott Motor Inn, Washington, D.C., on September 23, 1972. At this meeting, by-laws were read and approved and directors selected. We feel that the inception of this Club is a giant step in bringing together those individuals whose chief interest lies in the area of early radio. We invite all collectors and historians of the subject to join the Club. A note to William E. Denk, Secretary, 81 Steeplechase Road, Devon, Pennsylvania 19333, will bring you an application blank by return mail.

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President's Page

The Board of Directors of ARCA meet officially twice a year, during the Spring ARCA Convention and during the AWA Fall Convention. At the recent Board meeting at Canandaigua, several items of interest to the members were acted on. There was a profit to ARCA of $322.39 from the Louisville convention. The Board decided to give one half of the profits to the West Virginia Chapter of ARCA, since they helped in such a big way to make the Convention the success that it was. The Chapter has decided to donate the money to the Ashland, KY museum which they actively support.

As previously announced, the 1987 Convention will be held in the Washington, D.C. area. The Board agreed to use the Sheraton Hotel and Convention Center in New Carrollton, MD for the Convention. New Carrollton is a suburb of Washington, and very convenient to all of the attractions of our capital city. The hotel has excellent facilities for our Convention. The room rates are very reasonable. Contracts have been signed for the hotel. We owe our hosts, the Mid Atlantic Antique Radio Club and its president, Joe Koester, a vote of thanks for finding such a fine facility.

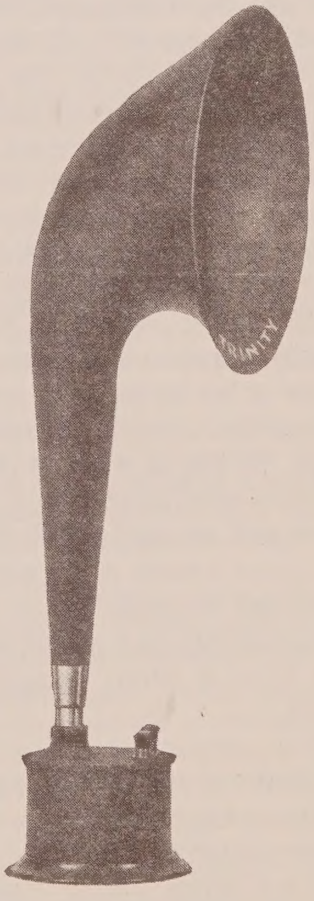
The West Virginia Chapter of ARCA officially extended an invitation to the Board to have the 1988 Convention in Charleston, West Virginia. Their invitation was accepted by the Board. It will be held June 9-11, 1988.

The Secretary reported to the Board that the recent dues increase does not seem to have affected the level of membership. There are now about 800 members in the Club, and membership continues to grow at a steady rate.

The Treasurer reported that the increase in dues has significantly improved the financial stability of the Club.

Planning for the 1987 Convention in Washington is in full swing. Our host, the Mid Atlantic Antique Radio Club, has already done a lot to guarantee a successful and entertaining meet. The hotel, noted above, ia a rare find! The facilities for a group like ARCA are excellent, including an indoor air-conditioned flea market area, if the weather is bad, excellent meeting rooms at no charge to the Club, and very reasonable room rates. Full details regarding registration and hotel reservations will be provided in the Spring Gazette. In the meantime, reserve the June, 1987 dates for the Convention and a family vacation in the Washington, D.C. area. See you there!

Jim



TRINITY RADIO COMPANY

168 Dartmouth Street

BOSTON, MASS.

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"The accomplishment of great things consists in doing small things well," said Confucius, and "The full measure of service goes with every Grebe receiver," said an equally famous Chinese philosopher, Dr. Mu. While Confucius may be well known to most people everywhere, Dr. Mu will most likely be remembered by the old timers as the character in the Grebe ads, circa 1920. it is possible that some newcomers do not know of the Grebe story so G.J. Gray, W8JDV, curator and owner of the Gray History-of-Wireless museum relates the history of Grebe Radio.

THE GREBE STORY

BY G.J. GRAY, W8JDV
Silent Key

Remember the Grebe ads in the early 1920s? The ads featured the venerable and wise Chinese gentleman, Dr. Mu, explaining why we should buy Grebe equipment. Grebe craftsmanship, pointed out Dr. Mu, was evidenced by solid, quartersawed, stained oak cabinets, satin finished bakelite panels, polished moulded dials, rigid bus wiring; all expertly assembled to produce a high quality radio receiver.

Alfred H. Grebe was born at Richmond Hill, Long Island in 1895. He later established a modern radio plant at the site of his birth. Like a lot of us, he started "tinkering" with radio at an early age. At the age of 14 (1909) he built a small workshop in his mother's backyard and started building exceptionally good loose couplers for his experimenter friends. Thus, a small business was started which was destined to have a great impact on the radio field.

In 1911, about the time Grebe's contemporaries started to college, he chose the romantic life of a sea going wireless operator, touring the seas as "sparks" for three years. The Orient held a special interest for him and may account for his Dr. Mu ads in later years. His experience as a wireless operator with the crude commercial spark equipment of that time gave him practical knowledge of what it took to transmit under all conditions.

Late in 1914, Grebe served as Chief Wireless operator on the S.S. Satanta, call GTG, a tanker under British registry. Ralph Barber, W2ZM, former Executive Secretary of QCWA, was 2nd operator. After a 9 month trip around the world, Grebe and Barber resigned at San Francisco and came back to New York by train. The ship was later sunk in the Indian Ocean by a German submarine and all hands were lost.

When he came back home he found that a change had taken place. Three years earlier few knew or cared about radio. Now, he found people interested in the fast growing science. Friends asked him to build receivers and amateurs asked for help with their transmitters. Grebe did not have a college degree but had a natural talent for the design and construction of radio equipment. With his talents so much in demand, he started building equipment for sale and issued a small catalogue. As the market for high quality radio gear increased the Grebe plant grew until it housed facilities for producing 10,000 receivers in 1926.

During the summer of 1916, Grebe had a contract with E.J. Simon & Co. to install Radio Detection gear on French Anti-Sub boats. Grebe and Barber installed the gear at Anacostia Naval Base.

AGP Receivers

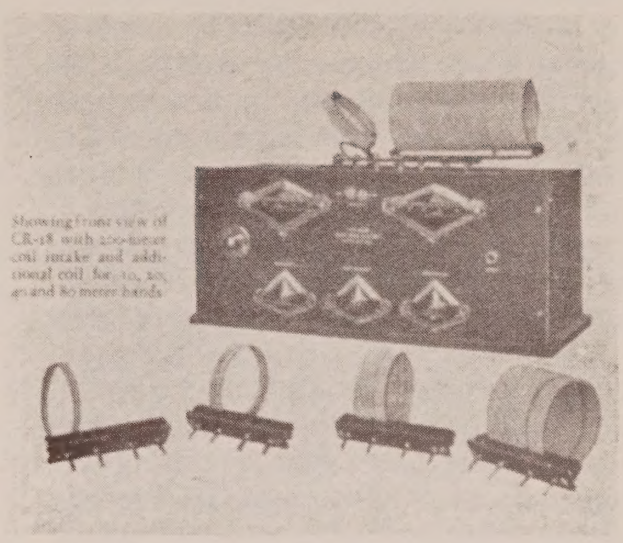
Grebe built receivers with the letters AGP before the model number. These letters stood for Armstrong-Grebe-Pacent; Edwin Armstrong for his regeneration, Grebe the manufacturer, and Pacent of Manhattan Electric Supply for idea and merchandising the line. Pacent marketed the receivers through his company under the name "Mesco." The AGP 101 sold for $32.50 in 1916. John DiBlasi, W2FX, former president of QCWA was manager of Manhattan Electric Supply.

In 1917, The Grebe Company designed and built special receivers for use on U.S. Navy Sub Chasers with radium coated dials for visibility when sailing without lights to prevent detection by enemy ships.

Grebe had built the, now historical, loose coupler to function with the crystal detector. Later, the vacuum tube replaced the crystal and variocouplers replaced the loose coupler. Variometers were added to tune the grid and give smooth regeneration control in the plate circuit. Every part of the Grebe receiver was designed and built to high standards of quality. Here, the principle of doing small things well to accomplish great things went into practice. Metal sheets and rods became carefully made capacitors and small metal fittings. Finely powdered Bakelite dust, moulded under great pressure and heat became solidly built variometer frames, sockets, capacitor frames and dials. Electrochemical processes and skilled forming turned aluminum into satin smooth parts. Everything was built in the Grebe plant with high engineering standards and talented workers to produce the finest in receivers. These receivers were an inspiration from a brilliant mind associated with many of the foremost inventors of the time.

Personnel

To the Grebe plant came Stewart Ballentine, John Hogan, Major Armstrong, Dr. Ben Lieberwitz and others to make their contributions to a truly fine product. Alfred Grebe was a tire-



FEATURES OF THE GREBE CR-18 LOW-WAVE RECEIVER

1. The CR-18 employs a coupled regenerative circuit adapted for reception of frequencies between 1500 and 30,000 kilocycles (10-200 meters).

2. Antenna coupling coil of novel design provides variable electromagnetic coupling between antenna and grid circuit, producing a high transfer of energy without affecting the wavelength calibration. This also makes possible the use of harmonic tuning to increase the signal strength, gives greater selectivity thru high-wave local stations and reduces interference and induction noises.

3. Losses in the entire circuit are reduced to a minimum by proper placing of the elements. Inductance coils are mounted on supports, far removed from operator's body and metal objects, thus eliminating capacity effects and attendant losses.

4. Plug in coils, enable rapid change to be made from one frequency band to another and are so designed that maximum signal strength is obtained. An isolated grid terminal lowers the minimum capacity, and insures correct insertion of the coil.

5. Grebe S-L-F (Straight-Line-Frequency) Condensers with small minimum capacity insure ease of tuning and maximum signal strength.

6. Beat frequency control which consists of a specially designed variable air condenser with a very small capacity variation insures accurate tuning to within a fraction of a kilocycle.

7. Plate Circuit designed to give smooth control of regeneration without affecting wavelength calibration and tuning. Oscillating point practically constant over entire tuning range. A non-inductive resistance prevents unstable action and dead spots.

8. Cushion sockets eliminate all vibration and microphonic noises detrimental to the reception of ultra-radio frequencies.

less experimenter who was responsible for many advances in radio design. If an idea occurred to him at 4 o'clock in the afternoon, the engineering staff would stay up all night until a "breadboard" model was constructed and some results were obtained. The experiment was continued until a complete receiver with all the refinements and wonderful workmanship was built. Bill Diehl, then Chief Engineer, recalls how at 5 o'clock in the afternoon, having finished work in the lab, he would check the production line and find 20 or 25 different receivers ready to be tested. He would spend the evening testing these completed receivers by hooking them up and listening to signals. He would tune the band checking for dead spots and testing the sensitivity on signals from California, New Zealand, Australia, Rome, Bordeaux and other DX stations. His first lab equipment was a wavemeter made with Seibt capacitor coils and a hot wire galvanometer.

Grebe's secretary at that time, now Mrs. Wiliam Diehl, tells how Major Armstrong came in one day dressed in old clothes and she sent him to the employment office for a job.

The CR Series

In 1919 the famous CR series started with the CR-1, 1 tube, short wave regenerative receiver. Wavelength range was 170 to 680 meters. No one talked in terms of kilocycles then. The CR-1 had a rotary coupler with unit tap switches for the primary, two variometers, one in the grid circuit, a vacuum tube socket mounted in the panel, a filament rheostat and the necessary binding posts and connections. UV-200, WE VT-1, and Audiotrons were used for detection. There was provided a small fixed capacitor to increase the normal wavelength range of 170 to 375 meters to a range of 280 to 680 meters. The change was made by switching the capacitor into the circuit. Maximum regenerative action was obtained with the plate circuit variometer producing resonance between the plate and grid circuits. The VT socket was made of seamless brass tubing, finished in satin nickel and held in a recess at the rear of the main panel by means of a bracket. The 1919 CR-1 sold for $100. This and all subsequent Grebe receivers were licensed under the Armstrong and Marconi patents. The other Grebe receivers of that year were all based on the CR-1 design. The CR-2 was a tuner only, without detector socket and one tap switch on the primary inductance. There was no filament rheostat. The CR-3 was a special relay man's receiver and had a range of 150 to 680 meters. The CR-4 was built upright and had a variable series capacitor in the antenna circuit. Other, more elaborate receivers, the CR-6 and CR-7 were also in the line. The CR-6, covering a range of 170 to

680 meters, had the basic CR-1 circuit with an antenna series capacitor and another variable shunt capacitor across the phone circuit for smoother regeneration control. The CR-7 was a long wave receiver covering the range from 500 to 20,000 meters. This was an elaborate receiver with a 12" x 21" panel, a detector tube socket mounted on the panel, an antenna series variable capacitor, a secondary variable capacitor, efficient banked litz-wound windings in two, four and six banks to obtain the proper coupling and inductance values. For wavelengths above 2200 meters, special concentrated inductances were used. Regeneration was secured by use of a tickler coil in

the plate circuit in inductive relationship to the grid circuit.

The 1920 catalogue said, "Evenings may be spent listening to high power long wave stations in France, Germany, Italy, Britain, Japan and even Russia." Crystal detectors, tube detector cabinets, one and two stage audio amplifiers, unit variometers, unit variocouplers, unit variable capacitors, fixed capacitors and rotary synchronous spark gaps were listed in this catalogue.

The Grebe Company developed and held patents on automatic filament control, molded Bakelite variometers, rheostats calibrated in ohms, tangent wheel verniers, tapered grip dials and unit sheilding. The automatic filament control gave the operator instant control of detector circuit, detector and one stage or detector and two stages of amplification. The plug energized only the filaments of the tubes actually in use. The line in 1923 incorporated all these improvements. The CR-8 selling for $135 replaced the CR-1 but the circuit was the basic variocoupler and two variometers with refinements to extend the wavelength range. This receiver, tuning the range from 150 to 1000 meters was an instrument to brighten the life of any relay man. The CR-5 was the first single circuit receiver with a range of 150 to 3000 meters and two dial control. This receiver was designed for the man who wanted simple control and wide range. It was tuned by an antenna series capacitor and a ten section, triple bank wound inductance in series with the stator winding of a variometer. The rotor was in the plate circuit to provide smooth regeneration control. The CR-9 added a two stage amplifier to the CR-5 circuit.

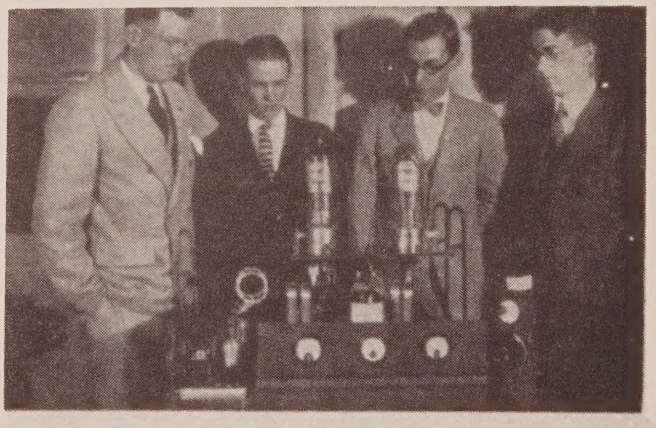
The first tuned radio frequency amplifier on the market was a Grebe RORN which provided excellent signal strength with only a small loop or short wire pickup. A vacuum tube with a tuned circuit was coupled to a standard regenerative receiver. Trouble developed due to r.f. feedback but by utilizing proper values of grid-leak and input capacitor combinations, Grebe was able to get adequate gain over the simple regenerative circuit.

Shorter Wavelengths

Amateur exploration into the shorter wavelengths was recognized in the CR-13 design which tuned down to 80 meters and incorporated tuned radio frequency amplification with regeneration in the detector plate circuit. The CR-12 and CR-14 were broadcast receivers, range 200 to 600 meters housed in beautiful walnut cabinets.

The CR-18 was the last of an illustrious line designed especially for the amateur. Following the trend to shorter wavelengths and efficient low loss coils the CR-18 had plug-in coils, regeneration, one stage audio with horizontal dial projecting through gold escutcheon plates on the panel.

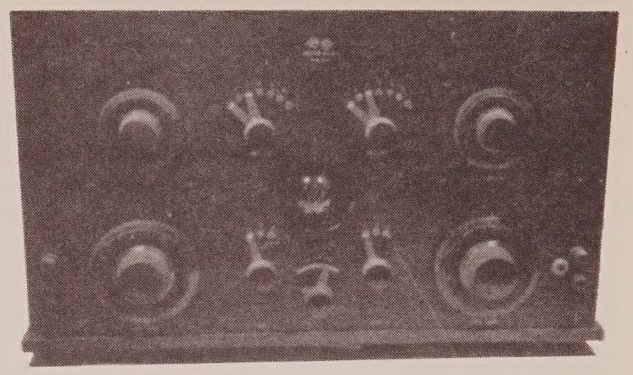
Grebe equipment went to the South Pole on Byrd's first expedition. Two of the early broadcast stations, WBOQ and WAHG were built and operated by Grebe. WAHG was later merged into WABC. The first marine broadcast station WRMU, which was used to broadcast yacht races and other marine events, was installed on MU-1, the yacht of Douglas Rigney, general manager and treasurer of The Grebe Company. WRMU had two oscillator tubes, two modulator tubes and power of 100 watts. When operated as a relay for WAHG a wavelength of 68 meters was used. For broadcasting direct to listeners, a wavelength of

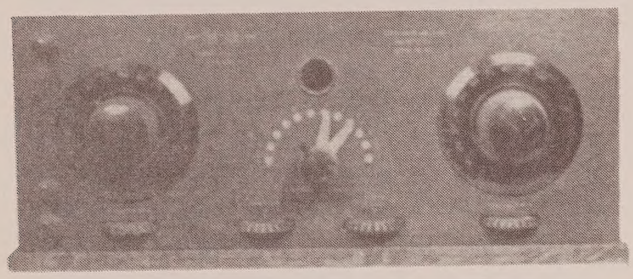


The Grebe built transmitter and receiver, model CR-18 used by Lloyd Jacquet, 2OZ, to report on the International Radio Convention in Paris, April 1925. Ostman, Diehl and Oscanyan were the contacts in America. Grouped about the equipment, from l. to r., are, F. B. Ostman, 2OM, William F. Diehl, 2ZV, Lloyd Jacquet, 2DZ, and P. C. Oscanyan, 2AZA.

236 meters was used. A motor generator operating on a 32 volt bank of batteries supplied 1500 volts for the plate.

In 1928 Grebe equipped the yacht Fan Kwai with a transmitter for operation between 40 & 130 meters operating on phone and ICW. The receivers were Grebe CR-18 for short waves and Synchrophase 5 for broadcast reception and phonograph amplification. A station, manned by Lloyd Jacquet, was installed on the S.S. Aquatania to test ship to shore short wave communication.





The first mobile transmitter, WGMU, with a power of 100 watts was installed in a car and used to broadcast horse races (much to the disgust of local bookies). It was also used for other remote pickups.

Amateur station 2LH was operated by Grebe in 1912 and handled a lot of relay traffic at that time. Experimental station 2PV became 2ZV and in 1916 operated with rotary spark and 500 cycle quenched gap. An arc telephone transmitter with special Grebe receiver made an imposing installation. Later, experimental station 2XE operated on wavelengths as low as 10 meters and included a CR-6 and CR-7 receiver. Ted Ostman, then director of Grebe Service, was 20M and won the second Hoover Cup for excellence in amateur design and operation. Ted recently became a "Silent Key" and another great amateur has passed on. A picture of station 20M taken in 1921 shows a CR-13 and 2 stage amplifier. A husky 1 KW transmitter with Grebe rotary synchronous spark gap and oscillation transformer with a single turn primary made of 3" copper strip was used. A sturdy wavemeter and loop modulated phone completed the set up. Contrast this solid, bulky gear with the stream-lined, efficient, tabletop gear of today.

In 1926 receivers designed for broadcast use featured the Synchrophase circuit with "binocular" coils designed to prevent interaction between stages. The patent rights on these coils started a lengthy legal action between Grebe and Hazeltine who remained good friends during the legal proceedings. The Synchrophase MU-1, Synchrophase 5 and 7 were all popular broadcast battery models which later used Grebe "A" and "B" battery eliminators for a.c. operation. The last models were self contained a.c. receivers featuring "Colortone" audio control and single dial control.

Grebe, the perfectionist and practical, self trained radio engineer was a shy, modest man concerned with producing only the very best radio equipment. He surrounded himself with capable men such as Bill Diehl, Ted Ostman, Douglas Rigney and other brilliant men mentioned earlier in this article. We can only wonder how far The Grebe Company would have gone if there had been no depression in 1929. This economic collapse reduced the market for high quality receivers and the company was liquidated in 1932.

In 1935, Grebe completed his

plans for a new company with a new line of 1936 receivers. However, Grebe had a serious operation on October 24, 1935. Complications set in and Alfred H. Grebe, W2ZG, became a "Silent Key."

WELCOME TO THE PITTSBURGH ANTIQUE RADIO SOCIETY, INC.

We got our start in late 1985 when those in the Pittsburgh area who were interested in the history of radio began to organize. We now have a membership of about 40 people who are interested in the collecting of antique radio apparatus and particularly in preserving the history of radio in the Pittsburgh area, the birthplace of commercial broadcasting.

The Society now meets four times a year, and membership is open to anyone with an interest in the history of radio and broadcasting. Membership dues are $10 per year.

A newsletter is published quarterly, and contains information about members, meetings, equipment, sales and swaps, etc. *The Pittsburgh Oscillator* welcomes relevant contributions from all members.

If you are interested, please contact The Pittsburgh Antique Radio Society at 506 E. Wheeling Street, Washington, PA 15301. (412) 222-6678.

Our next meeting will be at the First Presbyterian Church, 100 E. Wheeling Street, Washington, PA 15301 on Saturday, December 13, 1986 at 1 p.m.

NEWS FROM CHARLESTON

It seems as though the months roll by faster and faster, especially as we enter a very busy season of our year. The fall got off to a good start as several of our folks attended the 2nd anniversary of the Kentucky Highlands Museum where, as you know by now, the Charleston Chapter and curator Clyde Trivette have a very nice historical radio display. The display still ranks as one of the prime attractions of the museum, and it's good promotion for the national ARCA organization.

The September meeting was held at the home of our President, Lloyd McIntyre. Covered dish dinner and homemade ice cream highlighted the evening. We're already looking forward to our Christmas dinner in December. You can't tell me this chapter doesn't have its priorities in the right order!

In October we met at the home of Geoffrey and Grace Bourne. The victorian house is new to them but was built around 1905. The word spacious is probably an understatement when describing the room in this house. Jeff wanted the club to see it before he starts their restoration project. However, the one room they had time to restore before our October meeting was the Radio Display Room. Very nice indeed!

Book sales are doing well. Our best seller right now is probably the *Radio Collector's Directory and Price Guide*, a 321 page paperback book which sells for $15.95. Apparently, many collectors are finding this one a necessary addition to their libraries.

That's all for now. On behalf of the entire Charleston Chapter, may God bless you and yours in the coming year.

W. Blaine Smith
Reporter

"Puts the Joy in Radio"

Kentucky Highland Museum

It is with a great deal of pride that I give you this update on the Kentucky Highland Museum project. On September 20 & 21, 1986, the Museum celebrated its 2nd anniversary. This date marked the first full year of the West Virginia Chapter's participation in the museum and a grand year it was. Touring museums and planning an exhibit for one, are two different worlds. The time, cost and logistics of such an endeavor should never be taken lightly if you are planning such a display. I can say without a doubt that ours has proven to be worth all that effort. Clyde Trivette, one of the founding members of ARCA and a long time member of AWA, was a great inspiration. The help and encouragement from Bill Martin, who is on the Board of the museum, made life a little easier for us.

The bottom line is that the first year has proven ARCA's display to be one of the main attractions and a great source of information, both from a nostalgic and historical point.

On September 21, 1986, the World War II exhibit in the room next to the radio display was opened, and in the tradition that Bill Martin and his staff have established, it is nothing but first class. This should lead to even more visitors to the museum and the two displays which compliment each other as we view World War II and the post war years.

If you would like to support the museum in any way, drop me a note. Better still, a note and a check. We will see that the museum gets it.

—ARCA '87—Remember that the Spring Issue brings with it the announcement of the June meet. Make plans early so you will not have a conflict. We are excited about ARCA '87 and we hope you will be too.

HAPPY NEW YEAR TO ALL.

Lloyd E. McIntyre II
Executive Vice President

Just Waiting to be Found

We all know they're out there: old radios, wireless equipment, phonographs, or just about anything your collecting little heart desires. They're out there, all right, lying in someone's attic, basement, barn, or anywhere else people have found to throw things aside.

Every collector dreams of taking a choice collectible off someone's hands because "someone" thinks it is mere junk. (One man's junk is another man's treasure, so they say.) Often-times, the most talked about items in our collections are the ones in which we feel we obtained the best bargain. It's become something of a fisherman's yarn when collectors get together. But regardless of the pricing guides or price history of a certain collectible, a transaction will occur when the price at which the seller is willing to sell meets the price at which the buyer is willing to buy. Thus, it behooves us all as collectors to keep looking for bargains, because we never know what the seller will ask for the item. Such were the cases of some of the Charleston area members earlier this summer. Jeff Bourne and Dave Manning journeyed just outside the city limits to check out an old radio and record player advertised in the classified ads. For their $85 they returned with a Zenith Model 14 (1927) and an old Victrola in perfect working order. Not bad for a 20 minute trip. Clyde Trivette journeyed to a flea market where he found a Philco cathedral. In the same area he spotted a much smaller radio and, in a manner only Clyde could manage, struck a bargain with the man by offering $50 for both. What he walked away with were a Philco 90 (?) and a Crosley PUP!

These are just two recent incidents –not record setters by any stretch of the imagination. Nonetheless, both serve to prove that radios are still out there . . . somewhere. But what if you feel your resources have been ex-

hausted? You've looked and looked until you feel you know every item on every shelf in every antique store or flea market in town. Some folks just don't like antique stores or flea markets; so even if they had old equipment they wouldn't bother with the trouble of selling there. The public must be made aware of the interest in their old equipment. One medium the Charleston chapter found effective is the newspaper. Advertising functions of the local chapters or having the local newspapers do "interest" articles on some of the members' collections can really educated the public and thus make them aware of the interest in their equipment. The results are often unpredictable but always favorable.

So . . . a word of encouragement to collectors everywhere: be patient and keep checking out all those leads. You'll never know when that "junk" they're selling may turn out to be the prize of your collection. And remember to educate the public in your club's interest because even the public may not know what they have on their hands. Most of all, don't give up. Your collectible is out there somewhere . . . just waiting to be found!

W. Blaine Smith

FOUND

Our Newest Members

Marc Koser, Cogan Station, PA
Michael Sawyer, Key West, FL
Morris R. Kratz, Cedar Falls, IA
Willis F. Soule, West Columbia, SC
Dearl C. Duncan, Bradenton, FL
Andrew Filo, Cupertino, CA
Kenneth A. Chester, Longwood, FL
Mark A. Stewart, Altoon, WI
Tom Boone, Greenboro, NC
Alexander Peterson, St. Louis, MO
William P. Grande, Roslyn, PA
William L. Hoy, Charleston, WV
Ray D. Cottrell, Arnoldsburg, WV
Rick Mountjoy, Tempe, AZ
Roth Tucker, Moscow, ID
Randy Cavoli, Elmer, NJ
T. David Coates, Secaucus, NJ
David A. Swanson, Rockford, IL
John E. Kendall, Fallston, MD
Michael G. Marin, Taunton, MA
Jack Kashak, Chesterton, IN
William R. Reynolds, Dover, NJ
I.L. Sanders, San Jose, CA
Marvin P. Beeferman, Beachwood, NJ
Gary Stires, Cheyenne, WY
Dwight B. Bromnum, Lawrenceville, GA
Henry K. Fine, Chicago, IL
Charles P. Degges, Jr., Manasses, VA
Richard R. Spratley, Chesapeake, VA
Perry S. King, Somerset, PA
Gordon Symonds, Ottawa, Ontario

Reinstated

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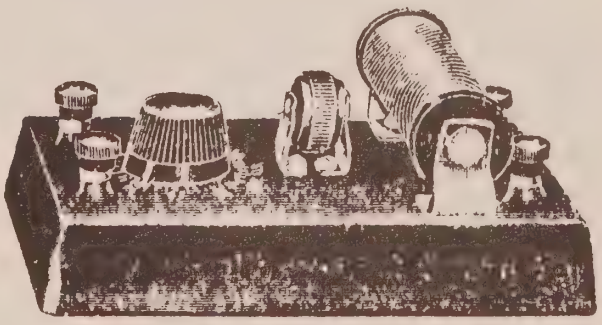
Edward C. Verner, Lakewood, OH
Jack Aqueros, NY, NY
David M. Upton, Derry, NH
Richard Wolven, Albany, NY
Thomas J. Maciolek, Chicopee, MA
Jack Smith, N. Andover, MA



MEL'S CORNER

As this year of 1986 draws to a close, we reflect on all that has been happening with this great hobby of antique radio collectors.

In the nineteen fifties and sixties, the nostalgia of early radio became apparent to small groups of amateurs as they stumbled on their early acquisitions of old gear, pushed aside, stored in attics, too good to throw away! Maybe some useful parts in there? Keep it for a while, later on? Toss it out, as dust collected, maybe give it away, but who wants it?

Small talk among the "Hams" as they discussed "what used to be"! ! Then some lively discussin of the merits of this and that manufacturer of equipment. This led on to dusting off some of this old gear, and out came some real beauties. Suddenly nostalgia became reality. Why not preserve these historic artifacts!

Museums at this point were reluctant to accept this "junk." True, buried away in corners of museums were a few pretty brass items, some odds and ends of tubes, maybe a few dusty sets, and that was it.

As the small groups of collectors grew, the Antique Wireless Association of Holcomb, New York came into being as an organization dedicated to the preservation of these historical artifacts. In a small barn there, donations started to come in from everywhere as folks became aware of a place to dispose of these items. This venture grew and grew until the walls were bulging and the floors were creaking! !

With the fairly good items, along came the trash! Thanks to Bruce Kelley-the barn owner-the famous "trash" pile was established and made available to collectors and members of AWA seeking a knob, a dial-a hunk of wire-an old cabinet-or the remains of an old loose coupler-spark gap-or whatever piled up there! This became the means of restoring some old set or item, providing a gold mine for the collectors.

The day finally arrived with Bruce-when enough-was enough of these buldging walls! ! It was elbow to elbow, going through the barn as beautiful displays were established-and just a few at a time could climb to the upper level to see displays. This prompted the establishment of the now famous antique radio museum at East Bloomfield, New York where Bruce Kelley is Curator. This Museum is rated tops with collectors in the category of wireless-radio-and TV artifacts.

We call to your attention a recent publication of the AWA known as the "AWA Review", a booklet of some hundred or more pages relating to the above activity background-obtainable through the Antique Wireless Association, Holcomb, New York 14469.

ARCA again held its meeting this fall in conjunction with the large annual radio meet at Canandaguia, New York where attendance broke all records at over a thousand! People coming and going most of the time. The flea market there was fantastic! Where did all this material come from? More and new collectors showing up with some early items-on up to the plastics and even TVs.

The surprise this year was the number of overseas visitors. Many of these were seen gathering equipment to ship back home. Likewise a number of foreign sets appeared at the flea market and auction there.

The trend of regional radio organizations goes on and on. These start out with ten or fifteen members getting together and before they realize it the membership is in the hundreds! The fun and problems arise then-establishing membership funds to publish a news letter-sending notices

–finding meeting places–speaker programs–auctions–writers of articles –swap columns–delegating committees to handle details–all fun and interesting work necessary. However they survive–and grow!

Our hats are off to those dedicated people who take the time and efforts to research the facts of historical interest! Books–magazines–catalogues –newspapers–libraries are searched for data to reach conclusions -some not easy to find? Untold correspondence goes through the mails-plus phone calls to arrive at solutions. There are now members setting up old equipment to test and evaluate the merits of its working ability under conditions as they exist today. Comparison of wiring circuit's efficiency-tubes-components-the modifications of items as they came along in development. This hobby grows more interesting as time moves along.

We find many specialists in the field of communication. Need it be said-communication is the basic tool of mankind! The "grunt" of a cave-man -the motion of a hand or arm-the Marathon runner of Roman days-the Indian smoke signals-the Pony Express. At the dawn of the electric age, inventors became aware of a possible means of faster communication. Short and long electrical impulses led Samuel Morse in 1832 to the development of the Morse code-still in use today. Animals communicate! Without communication where would this world of ours be today? Communication-in all its various forms is the miracle of mankind! !

As communication improves, so will this troubled world of ours improve! Better understanding and relations are the very heart of communication!

Cheerio! !

Dear Jane and Bill:

I was happy to see that you're offering back issues of the ARCA *Gazette* —I was lucky enough to get a complete set a month or so ago, but I noticed that my Volume 10, Number 1 (Spring '82) is defective (there are two sets of pages with the same page numbers!). So, enclosed is $2.00 for another copy, hopefully correct.

Reading over these back issues has been a fabulous learning experience for this relatively young collector. They are both interesting and entertaining, and contain much of true historical value. As one who edited a ham radio newsletter (12 pages every month) for several years, I can appreciate the considerable time spent in preparing each quite professional issue.

Recently I ran across a collection of 1920's radio gear and among the stuff was a "Model 106 Regenerative Modifier." This is a smallish box with a switch and binding posts on the front and an AK dial, with a beautiful AK vario-coupler inside. All passive—no tube sockets. Did AK make such a thing to turn their TRF receivers into regens?! Any pointers to someone who might know would be appreciated.

There's no rush in getting that Spring '82 *GAzette* to me, and thanks for any information you may be able to help me with.

Sincerely,
Rick Ferranti
116 Franklin Street
Arlington, MA 02174

The last issue of the GAZETTE was incorrectly numbered Vol. 15, instead of Vol. 14. Our apologies.

Editor

Ye Old SWAP SHOP

All ads and Swap Shop items are printed in the Gazette free of charge. We do ask that you write your ad on a separate sheet of paper, type if possible, or print, and be sure to include your name and address. We reserve the right to edit all ads. ARCA is not responsible for any transactions, of course.

WANTED: Early Crosley items; crystal set, Harko Jr., Harko Sr., Detector, Two-Step, etc.

Larry Wright, 131 Hilltop Drive
Lake in the Hill, IL 60102 Tel: 312/658-5993

WANTED: Speaker and Escutcheon for a Philco 70. Anything Silver Marshall or McMurdo Silver.

Larry Flegle, 210 Wylie Lane
Woodstock, GA 30188

WANTED: Antique tubes. Will consider purchasing individually or entire collection. Want oldies with filaments. Send list with prices you'd accept.

Marc Gottlieb, 931 Olive
Menlo Park, CA 94025

WANTED: Kiel table for AK 60, Zenith wood knobs, Battery Switch for AK 10, part no. 4183.

James M. Cole, 240 Gillespie Drive
Abingdon, VA 24210 Tel: 702/628-2835
K4HR0

JAMES FRED is publishing the Antique Radio Collector Newsletter for the third year. Send $1.50 for a sample copy or $7.50 for 6 issues, FREE swap ads.

Antique Radio Publications, R 1
Box 41, Cutler, IN 46920

CASH for Radios & Parts. Want all colors & styles by: Motorola, FADA, Bendix, Dewald, Emerson, Gerod, Sentinel, Addison, Knight, etc. Must be bakelite. ALSO WANTED: Pink, blue and green mirrored spartans. Deco & mirrored Glass, & Coca Cola Cooler Radios.

Mark Honea, 13201 N.W. 81st
Parkville, MO 6412 TEL: 816/891-2441

WANTED: Electro Importing helix in good condition. Will pay reasonable price. Must be stamped E.I. Co.

F.A. Nickols, 720 E. Eldorado
Appleton, WI 54911

WANTED: Radiomarine receivers models AR-8500; AR8503; AR-8510 and Mackay (Federal tel.) mod. 128 series.

Walter Britton, 225 So. 17th St.
St. Helens, OR 97051

FOR SALE: Over 200 Battery and AC Radios. Send large SASE with 2 stamps for 5 page revised list.

Donald Juleen, 6250 Ledge Rd.
Sturgeon Bay, WI 54235 Tel: 414/743-7922

COLLECTOR hungry for early wireless-catalogs and 1 tubers. Will buy for cash or have a few old telephones and phonographs for trade.

Bill Hoffman, 2570 Falcon St.
E. Meadow, NY 11554 Tel: 516/826-2135

WANTED: Detector/one stage amplfier TA unit for model 12 Atwater Kent breadboard recently acquired.

Don Herman, 1061 Boulevard
Haver, MT 59501

FOR SALE: Radios, tubes, parts, books, test equip., for the 1920s thru 1940s period. For list send SASE to:

Howard W. Granoff, 2445 Lyttonsville Rd.
Silver Spring, MD 20910

CLEAN UP your AK cathedrals with .007 mylar photo marked AK dial faces. For replacement over existing dials, on AK 80, 82, 84, etc., half size as shown. $10 each.

John Drake, Box 942
Madison, CT 06443

ANTIQUE Electronic Supply of Tempe, Arizona is expanding its list of items for antique radio collectors. We have acquired collections containing many interesting items. Be sure you're on our mailing lists for the latest catalog supplements coming out regularly.

Antique Electronics Supply, 688 W. First St.
Tempe, AZ 85281

FOR BOOKS, catalogs, instructions material, see our latest listings. New catalog now available at $2.

Puett Electronics, P.O. Box 28572
Dallas, TX 75228

WANTED: Western Electric tubes and equipment, amplifiers, speakers, miscellaneous items. Send list of items you wish to dispose of to:

Trial Electric Products Inc.
409 Yotsuya Heights 6-1
Yotsuya 4 Chome, Shinjuku, Tokyo 160 Japan

WANTED: Most everything in Western Electric gear. Tubes, speakers, microphones, amplifiers.

David Yo, P.O. Box 832
Monterey Park, CA 91754 Tel: 818/576-2642

RADIO AGE: The magazine for collectors, wide circulation, free ads, outstanding articles. Write for sample copy at $1.50 pp.

Radio Age, 636 Cambridge Rd.
Augusta, GA 30909

I BUY radio/wireless items pre 1925, books, magazines, catalogs, receivers, transmitters, speakers, crystal sets, detectors, tubes and spark gear. Also collections any size. Hundreds of items always in stock. Try me!

Jim Kreuzer, 6270 Clinton St.
Elma, NY 14059 Tel: 716/681-3186

FOR SALE: Early fine reprints of radio catalogs. DeForest, Tuska, RCA, Kennedy, Wireless Specialty and others. Send SASE for list, all at reasonable prices.

Arthur Aseltine, 345 Glenwood St.
An Arbor, MI 48103

WANTED: Anyone with Peerless, Chassis photo and internal parts for 5E-1440 compass receiver.

Will Jensby, 645 Giannini Dr.
Santa Clara, CA 95051 Tel: 401/296-6071

WANTED: Old broadcasting microphones, studio equipment, catalogs, magazines. 9" Dia. Philco dial for #37-690 or 38-690. Small screen and pre-war TV's. Western Electric speakers & other old equipment. Fancy and top of the line console radios, jukeboxes.

Robert Van Dyke, Squires Ave.
East Quogue, NY 11942 Tel: 516/728-1327

FOR SALE/TRADE: Philco 90 speaker, $15; Western Electric 202A Reproducer set, (1929) $200; Zenith Robot-Dial Console (1930) 95262, $175/trade; Zenith 6527 Tombstone (trade), RCA 10T Tombstone (trade); RCA 4T cathedral $100/trade; Majestic 151 cathedral $100/trade; Zenith 715 cathedral (trade); Majestic 20 cathedral $100/trade; Wards movie dial for parts, $25; Riders #17, $15.
WANTED: Deco sets, unusual cathedrals, AK-558 cathedral, AK-328 Tombstone. Foreign radios.

Bill Moore, 1005 Fieldston Court
HSV, AL 35803 Tel: 205/880-1207

WANTED: Clean AK12 breadboard 7 neutrowound super six. Have sets to trade, including Kennedy 281 & Paragon Type III.

Brian Rhodes, 90 Frances Avenue
Stanhope, NJ 07874 Tel: 201/398-5746

FOR SALE: Radio set encyclopedia, 76 xerox pages, 1924-1927 season, 340 mfgs, 250 pictures, $7.80 + $1 shipping; Midwest Radio service manual, 1931-1937, 450 pages, $25; QST's, 28 copies, 1922-1925 $45; Jones 1936 & 1937 handbooks, $5 ea;
TRADE: King Amplitone horn, 1936 microphone in ring, Deforest horn.

F.A. PAUL, 1545 Raymond
Glendale, CA 91201

WANTED; Amateur needs schematic for Silverton battery set, model unknown. Uses following tubes - 238, 30 Ballast, 951, 232, 230, 851.

George Hook, Jr., 6007 Lewis Way
Louisville, KY 40272

WANTED: Television books, documentation, equipment from the 30's. Trade or Buy.

R. Brewster, 454 Diablo Drive
Pittsburgh, PA 15241

FOR SALE: Ten pounds German WWII radio parts, $20. 18 German WWII tubes, $35 + shipping.

F.W. Chapman
#B218, 1130 N. Lake Parker Avenue
Lakeland, FL 33805

WANTED: Scott Philharmonic, Phantom De-Luxe AM/FM or 800B in original & working condition.

William H. Ross, 1124 Tower Road
Winnetka, IL 60093 Tel: 312/441-6462 (collect)

FOR SALE: Radio schematics, repair hints, $3 for all. Send Model # and SASE.

Don Davis, 8833 Brucewood Drive
Richmond, VA 23235

WANTED: Leeds & Northrup portable millivolt potentiometer Model 8657, dual range 0-16-64 millivolts. With ambient temperature correction thermacouple use.

Ted Drogoski, 507 Coal Valley Road
Jefferson Boro, PA 15025

FOR SALE: QST bound volumes for 1925, 1926, 1929. These bound volumes do not contain the front magazine covers. $35 each plus shipping.

Bill Hurni, 329 Evergreen Dr.
North Wales, PA 19454

WANTED: parts for DeForest Inter Panel to be restored. State what items are available and cost.

R. Burick, 6 Whetstone Dr., #5
Gaithersburg, MD 20877

FOR SALE: Radio sets, speakers, parts and tubes, Philco, Radiola, AK items. Send for list and details with SASE.

Edward Simms Jr., 27 Dorman Ave.
North Providence, RI 02904

FOR SALE: Atwater Kent breadboard mounting boards, finished or unfinished. All sizes available. State model or type size needed. Also Radiola 25 or 28 loops with original type Litz wire available on special order.
FOR TRADE: AK sets, horns or components prior to 1935. Send SASE for complete lists.

Lawrence D. Barry, 212 North 6th St.
Chambersburg, PA 17201 Tel: 717/263-3804

WANTED: Early Halicrafters communication receivers, transmitters and early catalogs, literature available. Please advise what you have, condition and cost. Note address change from last request.

Max DeHenseler, 333 East 43rd St.
New York City, NY 10017

WANTED: Atwater Kent coupler circuit tuner with panel mounting. State condition and cost.

Ross Smith, 1133 Strong Ave.
Elkhart, IN 46514

WANTED: Radio cabinet only, to fit a panel size 7" x 26" with cabinet depth of 12½". Plain or fancy cabinet desired. State condition and price.

David McKenzie, 516 South Exeter St.
Eustis, FL 32726

FOR SALE: Those most wanted instruction books and instruction sheets for the Lids of Aeriolas/Radiolas now again available while stock lasts. Books for Radiola AR three and three A., Regeno Flex, Bal. Amp, Grebe CR-9, RORN, RORK. Prices reasonable. Consider offers for entire lot–you sell!

Joseph A. Horvath, 531 Nutt Road
Phoenixville, PA 19460

FOR SALE: Variable voltage transformers, i.e., Powerstat 120VAC, 2.75 Amps., like new, $12 each, post paid.

James Fred, R1, Box 41
Cutler, IN 46920

FOR SALE: Riders 5 $13.00; homemade battery radio, $20; Fresman Masterrpiece, chassis only, complete $30; 7 panel & watch case meters $7 ea.; Heathkit Capacitor Tester $10; Good WE 216A tube $10. All plus shipping.
WANTED: Cabinet top for Radiola 25 or 28 and 104 speaker unit. DeForest tubes and cans. Early tube and light bulbs.

Bruce Harbeck, 13408 Westwood Lane
Omaha, NE 68144 Tel: 402/333-9013

FOR SALE: AK 32, works, nicely restored, $69: AK 30, no tag, nice & clean, works, $55: AK 35 works, clean, $39: AK 20 compact, works, real nice, $70: AK 49 tag missing, plays & looks real nice $59. Send SASE for complete list.

David T. McKenzie, 516 S. Exeter St.
Eustis, FL 32726

FOR SALE: Riders T.V. Manuals, Vol. 1 thru 14 plus index, $65. Admiral solid state stereo record player with hinged swing-out speakers. Contains new cartridge and filters, $25. Must be picked up.

Bill Hennen, 324 Forest Ave.,
Aurora, IL 60505 Tel: 312/897-4520

WANTED: Mono and early stereo tube HiFi equipment; loudspeakers, manuals, advertising, magazines, etc., working or not, complete or parts.

Jack Smith, 288 Winter St.
N. Andover, MA 01845 Tel: 617/686-7250

WANTED: The following Amrad sets: #3366 Reflex, Inductrole, #3500-2, #3590, #3071 & #3670 portable; will also buy any other Amrad sets, literature, bits & pieces. Also want a IP501 or IP500.
FOR SALE: All the parts to build an Audiotron set. No cabinet. Includes good tube-tap switches etc., $100.

Andrew Mooradian, 5 Priscilla Lane
Winchester, MA 10890

FOR SALE: Radio & speaker collection consisting of 19 radios, 17 of which are pre-1930. Includes early 1 tube (Peanut) with amp. Also 5 good horns and 4 cone speakers. $675 the lot. Also headphone collection, 15 sets, $40. Lots of tubes, literature, parts. Write:

Vic Clartrand, Box 325, RR3, Manotick, Ont.
Canada KOA 2ND or 613/692-6057

WANTED; Philco auto radio (or chassis) model 6 or 7. Also, General Industries home disc recorder unit, Model GI-R85L or GI-R90L.

Fred Butterfield, Rt. 3, Box 394
Williamstown, NJ 08094

WANTED: Any info on Peerless Wireless, Milo Bailey, Thomas E. Clark (TECLA), all of Detroit, and any other Michigan manufacturers: Brochures, ads, articles, photocopies O.K., tips welcomed.

Oran Sauder, 316 Wellington
South Lyon, MI 48178 Tel: 313/437-4413

WANTED: Hammarlund SPC-10 and HC-10 Converters. Also, a SP-600 (JX), prefer within 200 mi. of San Francisco, so I can pick up.

Frank F. Orcutt, 2214½ Santa Clara, Apt. A
Alameda, CA 94501

FOR SALE: Philco 44B (1933, nicely refinishe, not wkg.) $150. Zenith 908 (1935, wood O.K., needs refinishing, knobs not original, not wkg., tubes light) $65. New copies of Flick of the Switch, Vintage Radio, Etc. Send large 2 stamp SASE for complete and up-to-date list.

Ron Boucher, 376 Cilley Rd.
Manchester, NH 03103 Tel: 603/669-1698

FOR SALE: Ozarka 4 tube (exposed) battery set, $140; Ware Type T, $225 (excellent); AK L horn speaker, $50; Crusader cathedral $100, working; Westingale TRF with scenic front, $80; Hallicrafters clock radio, $30; Radiodyne WC-11, $55.

Greg Farmer, 71 Rice Creek Way
Fridley, MN 55432 Tel: 612/571-6062

WANTED: Old TV's. Paying $1200-$4000 for pre-WWII televisions. $20-$350 for post-war TV's, 12" or smaller, plus Predictas, unusual. Paying $150-$400 for catalin swirled bakelite table-top radios. Buying Deco and mirror sets.

Harry Poster, Vintage TV's, Box 1883 G
So. Hack., NJ 07606 Tel: 201/794-9696

FOR SALE: Two unusual television sets for the serious collector. Belmont Model 22AX22, with 10" electrostatic pix tube; and very rare Transvue "Entertainer" Model 160-L 16" set—one of the first remote control TV's. Not cheap.

Charles P. Harper, 2081 Harmony Court
Lexington, KY 40502

WANTED: For AK Model 145: knobs and glass dial cover and speaker. For Philco Model 89B: the dial face, or any Philco dial that mounts on the tuning shaft.

Ken Kelly, 475 Linden Lane, Apt. 112
Media, PA 19063

FOR SALE: Radio related tie clasps, lapel pins, RCA, GE, Philco, etc. Full enamel emblems. Send SASE for list. You will be glad you did.

Michael S. Sabodish, Sr., 11-A Matawan Ave.
Cliffwood, NJ 07721

WANTED: Any McMurdo Silver Electric set with or without cabinet. Masterpiece I, II, III, IV, V, VI 14-15, 15-17. Any literature, McMurdo Silver Times or Forum magazines. Also 1935-1939 Zenith consoles. We pick up most areas of U.S. & Canada.

Frank & Mary Rasada, 12507 Pinegrove Ln.
Cerritos, CA 90701 Tel: days: 714/951-9591, eves: 213/926-6722

Marconi
Wireless Apparatus

For Experimenters
and Amateurs

COMMERCIAL DEPARTMENT

Marconi Wireless Telegraph Company
of America
Woolworth Building
233 Broadway, New York City

OLD EQUIPMENT CONTEST CANANDAIGUA 1986

CLASS 1 TESLA ARTIFACTS		
FIRST:	Alan Douglas	Original TESLA publications
SECOND	Jensby/Kreuzer	TESLA publications
THIRD	Fred Chesson	TESLA coil
SPECIAL AWARD	John Terrey	TESLA Magneto Electric Machine
CLASS 2 EARLY TRANSISTORS AND RADIOS		
FIRST	Ross Smith	Regency Development
SECOND	Mike Feher	Transistors & References
SECOND	Jim Troe	BTL Prototype
THIRD	Robert Lozier	Early Production Sets
THIRD	Ludwell Sibley	Antique Semi Conductors
CLASS 3 CRYSTAL & PASSIVE DETECTOR SETS		
FIRST	Ralph Muchow	E.J. Simon Shipboard Rcvr.
FIRST	Alan Douglas	ER 753 & Lab Notebook
SECOND	Mike Feher	Bowman Crystal Set
THIRD	Ed Taylor	BTH "BIJOU" 7 Cosmos Amp
CLASS 4 ONE AND TWO TUBE RECEIVERS		
FIRST	Doug Furney	AMRAD Duo
FIRST	Ralph Muchow	Connecticut Tel.
SECOND	Mike Feher	Micro-Secteur
THIRD	Ed Lewis	Monroe D-7
CLASS 5 THREE TUBE RECEIVERS		
FIRST	Ralph Muchow	Clapp Eastham ZRFDA
SECOND	Bob Betz	Paragon RD-2
THIRD	Bill Findley	FADA 195A
THIRD	Merrill Bancroft	TUSKA 225
CLASS 6 FOUR AND FIVE TUBE RECEIVERS		
FIRST	Jim Kreuzer	PYE 4 Valve
SECOND	Robert Lozier	NORA 4 KW
THIRD	Jim Miller	Pilot Super Wasp
CLASS 7 SIX OR MORE TUBE RECEIVERS		
FIRST	Mike Katedorn	Armstrong/Houck Super
SECOND	John Caperton	Golden Leutz C7
SECOND	Robert Lozier	Radio LL Synchrodyne
THIRD	Tod Prowell	Victoreen Super
SPECIAL AWARD	Art Albion	Westinghouse Rebroadcast
CLASS 8 SPARK TRANSMITTERS		
FIRST	John Williams	Knott Coheger Transceiver
SECOND	Andre Chompret	Dugratet French Navy
THIRD	Mike Katzdorn	Pierce Wavemeter
SPECIAL AWARD	Don Patterson	AMRAD SCR 74A
CLASS 9 TUBE TRANSMITTERS		
FIRST	Rodney Schrock	Ham Station 1932
SECOND	Bob Wilkinson	5 W B'cast & Calibrator
CLASS 10 TELEGRAPH SOUNDERS & RELAYS		
FIRST	Ed Taylor	Register & Sounder
SECOND	Ross Smith	Switchboard, Battery & Sounder
THIRD	Bob Schaumleffel	25 Relays & Related Equip.
CLASS 11 BEST RESTORED BROADCAST RECEIVER		
FIRST	Larry Wright	Leutz C7
SECOND	Robert Enemark	3 Tube Regen.
THIRD	Mike Katzdorn	Armstrong Houck Super
DISPLAYS		
SPECIAL AWARD	Franz Mock	German Scanning Disk
SPECIAL AWARD	John Glisson	United Wireless Type "D"
EUNICE THOMPSON AWARD		
BEST IN SHOW	Alan Douglas	TESLA Documents
ELLE AWARD RECEIVER CONSTRUCTION		
	A.C. Stoddard	The Complete Station
MATLACK AWARD AMATEUR EQUIPMENT		
	Jim Miller	Pilot Super Wasp

77 Entries

JUDGES: Charles Breisford, John Caperton, Charles Days, Alan Douglas, Bill Holly, Bob Lozier, Ross Smith, Ralph Williams

CONTEST ADMINISTRATOR: Elinor Williams. MONITORS: Ruth Drake, Louise Moreau, Paul Corrette, Elinor Williams

DXING THE PARAGON RA-10

The RA-10 is described by Paragon as an "Amplifing Short Wave Receiver". In today's terms, the set is a tuner only; it contains no tubes and needs a companion piece. In *Getting Acquainted With Radio Receivers*, written by Paragon's Paul Godley, two such units are recommended. A model DA-2 detector 2 stage amplifier was available, or a budget-minded person could choose the vacuum tube control for detection without audi amplification. In addition to the above, an Auxiliary antenna tuning condenser was described as "desirable but optional". The setup for this article was a Paragon antenna tuner, the RA-10 and the Vacuum tube control unit. This was probably the way many of the RA-10s were used as the DA-2 only sold for a short time near the end of the RA-10's production.

Continental Radio Corporation had exclusive distribution rights for the RA-10. All advertising of the radio was done by them. A Radio News ad from October, 1920 reads "Greatest Improvement in Modern Radio", and further claims "Signals which on actual tests are inaudible with any other type of receiver become easily readable". Much advertising for this set can be found, most of it similar to the above.

The RA-10 was produced from late 1920 until sometime in 1923. Originally a set made for the amateur, when the public embraced radio, the RA-10 also became a receiver for the broadcast fan. Designed to operate from 1000 to 160 meters (300-1875 kHz), broadcast frequencies as well as many others were covered.

The RA-10 is a three circuit regenerative tuner. This circuit was much used by the radio amateur but most broadcast manufactuers used simpler curcuits to operate curcuits in their radios. If you open up an RA-10, it looks almost empty. Starting at left side of the radio, the "primary inductive switch" (tap switches) is connected to "the antenna load coil and the inductive coupler". Antenna circuit tuning is varied by the tap switches, top taps vary the antenna circuit by 12 turns and the bottom ones fine tune it by a single turn. The optional Antenna tuning condenser allowed further fine tuning. The small dial controls the "inductive coupling" between the antenna and vacuum tube circuits changing sensitivity and selectivity. Turning the dial to the left made the tuner more sensitive and less selective; turning the dial to the right had the opposite effect. There are two tuning ranges controlled by cutting load coils in and out of circuit. With the wave-length switch in the left position, on the two contacts, tuning is from 160 to 475 meters(1875-630 kHz). When the switch is in the right position (no contact) tuning is from 390 to 1000 meters (300-769 kHz). To the right of the wave-length switch is a large dial. This is the "secondary (grid) tuning condenser", the main tuning dial on the receiver. The condenser is of the straight line frequency type. Regeneration is controlled with the large dial on the right side of the set ("plate tuning inductance"), using a standard variometer.

Connecting the Vacuum tube control is fairly easy, only two wires connect the tuner to the unit. The terminal marked G on the tuner is connected to the GC terminal on the vacuum tube control. The F binding posts on both pieces are connected. B- is connected to the W binding post on the tuner. A-, A+, and B+ are tied in at the marked posts on the tube unit. If the Antenna tuning condenser is used, it is connected in series with the antenna. Ground connection is made thru the E post on the RA-10, while the headphones are connected to the TEL terminals on the tuner.

Although a Morehead detector tube was tried, the R.C.A. UV-200 tube worked better and was used for dxing. The A voltage was supplied by a large 6 volt gel cell. Instead of the usual 22.5 volts, a B voltage of 28.5 volts was supplied by a number of AA cells connected in series. This was

done to ensure the best reception as the 1 amp 200 tubes need to be tried at different B voltages for best results.

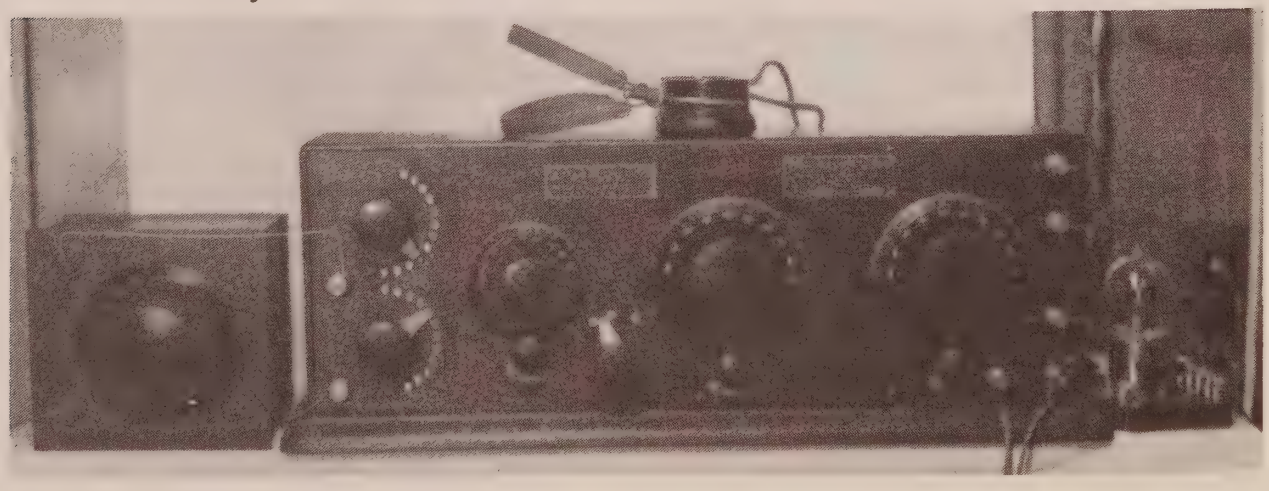
Although Paragons instructions are not very complex, this radio setup was one of the hardest to operate I have used. Even with a copy of the operating directions, several hours were spent learning how to get the most out of the radio before the dx work was started. Around 1500 kHz and up, regeneration was mostly controlled with the tube rheostat, as the plate variometer read near 0. One winding on the rheostat either direction and a station could be lost thru lack of signal strength or oscillation. Performance of the RA-10 was helped considerably by the antenna tuning condenser. Several of the stations especially at the upper end, would not have been heard without it.

To tune the RA-10, first set the variometer at 0, the secondary tuning codensor at 100, and adjust A and B voltages to obtain a slight hiss in the headphones. Reduce A or B voltages just under this point. Coupling should be set near 50; this may change depending on the antenna and local interference. Regeneration should be increased until a slight click is heard in the headphones, indicating the oscillation point. The tap switches and antenna tuning condenser are adjusted until oscillation stops. The coupling may need to be further adjusted to obtain this effect. The receiver is now at its most sensitive state and ready to tune in stations. All of the controls have a slight effect on the settings of the other controls. I found setting the secondary tuning dial and then checking all other controls brought the best results.

The Paragon RA-10 combination was one of the most sensitive and selective sets I have ever used. At a time when many broadcast receivers emphasized sensitivity over selectivity, the Paragon had both. Unfortunately it was also a very difficult set to operate, but when used correctly, excelled in dx work. In looking at the advertising, it is certainly believable that signals "inaudible with any other type of receiver" were received. The price of the RA-10 was very reasonable at $85.00 when introduced (later $65.00), and a radio fan willing to put up with all the necessary adjustments probably could not find a better dx set near this price.

Reception Record Key: ATS: Antenna Tuning Condenser, PIS: Primary Inductance Switch (Tap switches) top switch, bottom switch, IC: Inductive Coupler, WCS: Wave Change Switch R-right L-left, STC: Secondary Tuning Condenser, PTI: Plate Tuning Inductance regeneration control. Note: When stations are received on both wave lengths only the R setting is listed.

James P. Mckinnon, 605 No. Bridge St., Bridgewater, N.J. 08807.



RECEPTION RECORD FOR THE PARAGON RA-10

ATC	PIS	IC	WCS	SIC	PTI	STATION	kHz	CITY, STATE
86	5,1	90	R	64	74	CJSB	540	Ottawa, Ont.
93	5,1	90	R	62	72	WGR	550	Buffalo, N.Y.
90	5,2	90	R	60	68	WFIL	560	Philadelphia, Pa.
74	5,1	90	R	58	65	WMCA	570	New York, N.Y.
80	5,2	90	R	58	64	WHP	580	Harrisburg, Pa.
90	5,2	90	R	56	64	WARM	590	Scranton, Pa.
96	6,7	90	R	52	63	WIP	610	Philadelphia, Pa.
100	6,9	90	R	50	63	WSKQ	620	Newark, N.J.
94	8,6	20	R	46	60	WSM	650	Nashville, Tenn.
124	4,7	90	L	160	63	WMAQ	670	Chicago, Ill.
120	8,6	20	R	46	60	WNBC	660	New York, N.Y.
100	7,9	20	R	42	58	CBF	690	Montreal, Que.
154	7,7	0	R	38	60	WLW	700	Cincinnati, O.
50	7,7	0	R	36	43	WOR	710	New York, N.Y.
42	7,2	0	R	28	56	WSB	750	Atlanta, Ga.
100	7,2	0	R	28	56	WABC	770	New York, N.Y.
46	7,2	0	R	10	64	CKLW	800	Windsor, Ont.
74	6,9	40	L	120	112	WTMR	800	Camden, N.J.
74	6,9	40	L	114	90	WNYC	830	New York, N.Y.
86	8,9	90	L	112	86	WCCO	830	Minneapolis, Minn.
54	8,9	90	L	112	80	WHAS	840	Louisville, Ky.
63	8,8	90	L	110	80	WTEL	860	Philadelphia, Pa.
84	8,8	90	L	106	92	WCBS	880	New York, N.Y.
64	7,8	90	L	104	90	WLS	890	Chicago, Ill.
78	7,7	40	L	100	62	WFLN	900	Philadelphia. Pa.
78	8,8	90	L	104	90	CHML	900	Hamilton, Ont.
64	7,7	40	L	96	52	WPAT	930	Patterson, N.J.
108	7,4	90	L	92	66	WPEN	950	Philadelphia, Pa.
58	7,7	40	L	88	52	WWDJ	970	Hackensack, N.J.
150	9,3	90	L	88	68	WCFL	1000	Chicago, Ill.
160	9,8	90	L	86	58	WINS	1010	New York, N.Y.
120	9,5	90	L	84	68	KDKA	1020	Pittsburgh, Pa.
148	9,8	90	L	80	58	WHN	1050	New York, N.Y.
80	9,8	90	L	80	68	KYW	1060	Philadelphia, Pa.
56	7,3	40	L	76	38	WKMB	1070	Stirling, N.J.
56	7,3	60	L	54	40	WTIC	1080	Hartford, Conn.
64	10,9	90	L	78	58	WBAL	1090	Baltimore, Md.
64	10,10	90	L	74	48	WBT	1110	Charlotte, N.C.
54	10,10	60	L	68	52	KMOX	1120	St. Louis, Mo.
80	10,9	40	L	64	28	WBRW	1170	Somerville, N.J.
46	10,10	60	L	64	44	WWVA	1170	Wheeling, W.V.
52	8,5	90	L	64	32	WCAU	1210	Philadelphia, Pa.
58	8,5	90	L	60	26	WMTR	1250	Morristown, N.J.
64	10,8	40	L	56	20	WFBR	1300	Baltimore, Md.
60	9,7	100	L	54	10	WIMG	1300	Trenton, N.J.
58	9,7	120	L	48	10	WHWH	1350	Princeton, N.J.
50	9,4	140	L	45	3	WCTC	1450	New Brunswick, N.J.
50	9,4	140	L	44	3	WTOP	1500	Washinton, D.C.
44	10,7	180	L	40	0	WKBW	1520	Buffalo, N.J.
70	11,5	180	L	40	0	WCKY	1530	Cincinnati, O.
42	10,5	160	L	40	2	WQXR	1560	New York, N.Y.
44	10,12	180	L	40	0	WERA	1590	Plainfield, N.J.
60	11,9	90	L	40	4	WCBG	1590	Chambersburg, Pa.

Old-timer's Notebook

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Q. Dear Old Timer: I have a problem. I bought a cathedral radio and since it had a conventional line cord and two prong plug, I plugged it into my home wall outlet. To my surprise, the tubes lit up like Christmas tree lights then went out. I then looked at the tiny nameplate riveted to to the chassis and saw that it was a 32 volt DC radio.

Pray tell, what is a 32 volt radio? Why did I burn out all the tube filaments?

A. You burned out all the tube filaments because you had five 6.3 volt filament tubes connected in series which required 31.5 volts. You may also have had two 25 Volt filament tubes in parallel with the five series filaments. You plugged the radio into the 117 volt wall outlet. The result is a radio with 7 tubes whose filaments are burned out. This answers the last half of your question. To answer the first half of your question we must go back to about 1915. Before this time, life on a farm was hard, water was pumped by hand or with a windmill, horses were used to till the soil and harvest crops, and clothes washing was done by hand on a wash board. There were no radios; kerosene lamps furnished the light in the home, and there were no labor-saving devices for the housewife.

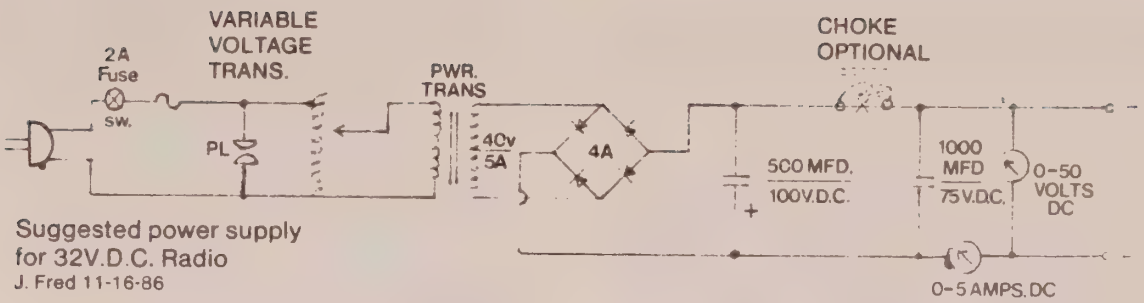
The following story of how the 32 volt system came into being is taken from a book titled *Delco-Light Business,* published and copyrighted in 1929 by Delco-Light Company of Dayton, Ohio.

To begin with, two men, both farmer's sons, realized fully the problems of the farmer. These two men, Charles F. Kettering and Colonel E.A. Deeds, were developing and building Delco Starting, Lighting, and Ignition systems for automobiles.

One day a telegram arrived from Florida requesting a complete generator outfit for a Cadillac car. A service man was immediately dispatched to Florida with the requested equipment. Upon his arrival he found that the Cadillac user had been operating the generator in his car to light lamps in his cottage. This was not entirely satisfactory because, when the car was out in the evening, the cottage was without lights. Hence, the request for a separate generator to be used in the cottage.

Work was started immediately on the development of a 32 volt DC generating plant. To cut the story short eventually there were many manufacturers of 32 volt light plants and many thousands were installed on farms throughout the United States.

Soon there were electric motors to run water pumps, food mixers for the kitchen, drills for the workshop, electric lights, toasters, vacuum cleaners, and yes, radios. The first 32 volt radios I am aware of only used the 32 volt system batteries to light the radio tube filaments, and used regular "B" batteries like the early battery radios. The 32 volt battery system was made up of sixteen or more 2 volt lead acid cells. These cells were charged by a generator driven by a gasoline engine. Thus we could use almost any combination of tube filaments. 2 volt filaments could be connected across one cell, 6 volt filaments could be connected across three cells, and 25 volt tubes could be connected across 12 or 13 cells. Tube filaments could also be connected in series or parallel across any combination of two volt cells. This took care of filament voltages, but the radio set still needed several expensive "B" batteries. Soon the radio engineers came up with two methods of eliminating the "B" batteries. First they simply made the 32 volt radios like automobile radios. In fact, the Delco and United Motors 32 volt radio circuits used components similar



Suggested power supply
for 32V.D.C. Radio
J. Fred 11-16-86

to the car radios made by the Crosley corporation in Kokomo, IN. Some of the early GM car radios were made by Crosley in a building later sold to the Delco Radio Div. in Kokomo. These radio chassis and vibrator power supplies were installed in cabinets very much like the AC radios of that time.

These 32 volt copies of car radios were less than satisfactory. There was audible vibrator noise as well as electrical noise generated by the vibrator. These sets also drew an excessive amount of battery current. After a few years the engineers came up with a design that operated the tube plates and screen grids on 32 volts instead of the usual 180 to 250 volts supplied by the vibrator power supplies. Most of the vacuum tubes available at this time needed the higher plate voltages so the performance of the sets suffered. However, the engineers were equal to the job of increasing the gain of the set. Some of the improvements were: an additional IF stage was added for more IF gain, some sets had an RF staged added for more RF gain, some sets had push-pull audio transformer driven audio output stages, and finally, new output tubes were designed (notably the 48) which was able to produce more power with 32 volts on the plates. In addition coils with a higher "Q" (figure of merit) were designed to be used with these circuits. The result was new 32 volt radios that performed equal to or better than the vibrator powered radios. In addition they operated very quietly and with less battery drain.

As a general rule very few radios were built by the large well-known radio manufacturers. RCA, Philco, and Atwater Kent made only one or two models. The primary sellers of 32 volt farm radios were mail order catalogs, i.e., Sears, Wards, and Spiegles, farm cooperatives, and auto parts and battery stores. The reason for this sales pattern was easy to see. The city people had the power line to operate their radios while the farms had no electricity but the 32 volt light plants.

Who made the 32 volt radio sets for these retailers? Many small "Private Brand" radio manufacturers. These were companies who had no nationally recognized brand names and no dealer network to sell their sets. Some of these companies were: Clinton Radio in Chicago, Mercury Radio in Minneapolis, Sentinental Radio in Evanston, IL, Belmont Radio and Wells-Gardner, both in Chicago, Karola Radio in Minneapolis, plus many others. One company organized by the Tatro Brothers of Decoeah, IA made many 32 volt and other types of farm radios.

After World War II the Rural Electrification Administration began to install power lines in the rural areas and farms soon had electricity. The last 32 volt radios I know of were made between 1950 and 1955.

Now that our history lesson is over for the day, let's see how you can have a working 32 volt radio. I only know of a few collectors who have 32 volt radios. I personally have about twenty 32 volt radios in my collection.

Now that your radio has blown all of its tubes you must obtain new ones before you can go any farther. You should also buy or build a power supply that will deliver at least 32 volts of well-filtered DC. You could also use car batteries in series to get enough voltage. A suggested circuit diagram is shown for the power supply. If you make a variable voltage supply, it can be used for many other projects.

After the supply is ready and you have new tubes in their sockets, con-

nect at least 50 feet of antenna wire to the radio and turn it on. If it plays you are home free, but if it doesn't, you must trouble shoot it just like any other radio.

We discussed vibrator power supplies in the last issue of *The Gazette*, in the car radio discussion so we won't repeat it here. Trouble shooting the rest of the set will be done just as you would any other electrically operated radio.

If you have a problem with, or need parts for a 32 volt radio, you can call me at 317-268-2214 any evening after 7 p.m. No collect calls will be accepted.

James A. Fred
Rt. 1, Box 41
Cutler, IN 46920

THEY CALLED IT RADIOMOVIES

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By David Lachenbruch

Although American television generally reckons its birth from the post-World War II period of the late 1940s, the first wave of TV excitement actually swept the country when Sid Caesar was 6 years old, Jackie Gleason was 12, Johnny Carson and Merv Griffin were 3—and eight years before the blessed event in the Cavett household. It's been all but forgotten, but from 1928 through 1932, thousands of adventurous radio amateurs huddled in darkened rooms to squint at dim black objects cavorting across tiny pink screens.

The Depression and advancing technology combined to kill off the early boomlet of "mechanical" television. But the furor over primitive "radiovision" spurred a major industry-wide crash program which resulted in the development of television as we know it today.

The name of Charles Francis Jenkins (Charles Francis who?) has not gone ringing down the corridors of scientific history. Yet he occupied a unique position as the first real television broadcaster.

"We began broadcasting radiomovies July 2, 1928, on a regular schedule," Jenkins wrote in 1929. "In August, one hundred or more had finished their receivers and were dependably getting our broadcast picture and were reporting thereon, to our great help. At this writing, thousands of amateurs fascinatedly watch the pantomime pictures in their receiving sets.

If this programming doesn't sound as exciting as ***Mission: Impossible,*** it should be borne in mind that broadcasting little 1-inch silhouettes to an eager, but limited public was about as impossible a mission as anyone could have conceived at the time. And after a few short years, the whole project was destined to self-destruct.

Charles Francis Jenkins was one of the last of the breed who listed their profession as "inventor." In 1892, at 25, he invented the basic motion-picture projector which is still in use in movie theaters today. In the early 1920s, he turned his attention to the concept of projecting movies by radio, building on a principle developed in 1884 by a German, Paul Nipkow (as did most early television experimenters). This involved the use of a spinning disk, with a spiral of holes near its outer edge to disassemble a scene into dots, and a similar disk at the receiving end to reassemble the picture.

In 1922, using his own version of Nipkow's disk, Jenkins transmitted a still picture by radio from one room to another. The next year he received nation-wide attention when he sent a recognizable picture of President Harding by wireless from Washington to Philadelphia. In an attempt to interest the Navy in the military possibilities of TV in 1925, he sent a live picture of a moving windmill from near-by Anacostia to Washington, D.C.

Jenkins was one of many early tele-

vision experimenters, who mostly worked independently of each other. Also on the trail of TV were large corporations including General Electric Company, which was preparing for experimental telecasts from its radio station in Schenectady, N.Y., and the American Telephone & Telegraph Co., which in 1927 transmitted moving images of "living persons" from Washington to New York by telephone wire.

Jenkins combined his first love with his second to develop what he called "radiomovies"—movie films transmitted by radio. Although the word "television" had come into widespread use as a wonder of the future, Jenkins stubbornly stuck to his own set of definitions: "Television"meant transmission of pictures over a wire; "radiovision" stood for moving pictures sent by radio. Jenkins' radiomovie technique involved a crude version of the flying-spot scanner, a principle still used today in televising films.

With an experimental license from the Federal Radio Commission, Jenkins set out to prove that radiomovie service would soon be ready for commercialization. His film transmissions in 1928 originated from Washington, 8 to 9 P.M. Mondays, Wednesdays and Fridays and were the first regular telecasts designed to be received by the public. The programs were specially selected animated films showing silhouettes of children, dolls and fairies.

Radio was just emerging from the novelty stage, and thousands of amateurs and constructors were ready to experiment with the next logical step —pictures on the airwaves. On request, Jenkins Laboratories mailed out reams of literature on how to construct a homemade television receiver. "Building a radiovisor is really very simple," said one of Jenkins' leaflets. All you needed was a radio and three extra part—a 55-cent neon lamp, a scanning disk (held rigid by mounting it between "two 6-inch talking-machine disks you get at the 10-cent store"), and a motor to rotate it. A section of inner tube from an automobile tire was recommended for use as a belt to drive the disk.

To those potential viewers who didn't wish to make their own sets, Jenkins Laboratories suggested, "you will find picture receivers priced from $2.50 upward; if you don't know where to get them, we will advise you."

To receive a Jenkins radiomovie, the experimenter first tuned his radio to the voice announcement of W3XK until it came in loud and clear. Then he switched off the loudspeaker and switched on the neon bulb in its place, and started the motor while peeping into the little 1-inch-square opening where the picture was formed by the blinking of the pink lamp as the holes in the disk whirled by. Some viewers —or "lookers-in," were called then— used magnifying glasses to enlarge the picture.

Synchronizing the picture was a challenge, since it was necessary to get the disk spinning at exactly the same speed as the one in the broadcast station. With proper manipulation of the speed-regulating screw, one of Jenkins' bulletins said, "the picture will presently appear, probably obliquely, moving more and more slowly until it stops, upright, and there is your radiomovie, in all its fascination. If the picture shows the upper half of the subject and the lower half above it, just touch the disk with your finger once or twice, and the picture will move up until it is framed.

Jenkins' spinning disk had 48 holes, providing a picture composed of 48 horizontal lines, changing 15 times per second—as compared with today's television image of 525 lines and 30 complete pictures each second. Because the radiovisor was hooked up in place of the loudspeaker, there was no sound during the picture broadcasts. Jenkins alerted his lookers-in to the fact that "each picture story will finish with 'END,' which means, of course, [that the viewers have] to throw the switch back to the loudspeaker for the next announcement."

Jenkins was certain his broadcasts

represented the wave of the future. "Ultimately," he told his viewers in 1928, "this pantomime storyteller will come to all our firesides as a fascinating teacher and entertainer, without language, literacy or age limitations; a visitor to the homestead with photoplays, the opera and a direct vision of world activities, without the hindrance of muddy roads or snow blockades."

Even before Jenkins' regular broadcasts began, television fever had been running high among radio amateurs. It was hot enough to support the publication of a magazine called Television, issued sporadically by Hugo Gernsback, inventor, writer and technical publisher. Television was fat with ads for picture transmission experimentation kits, parts, discs and neon lamps. A successor, Television News, was published through 1931. Gernsback owned a pioneering radio station in New York, WRNY, which broadcast regular television programs for a while, starting in August 1928, only a month after Jenkins' premiere. The Gernsback telecasts added something new —simultaneous sound. Two receivers were needed, since the sound was broadcast by another station. WRNY broadcast live pictures, which it scheduled the first five minutes of every hour. A 26-hole disc was required—a step downward from Jenkins' high-fidelity 48-holer.

A month after WRNY's TV debut, giant General Electric planted a widely publicized milepost in television history. WGY, the GE radio station in Schenectady, broadcast—live—the first video drama, an old chestnut called "The Queen's Messenger," selected because it had only two characters. GE stressed that the program was experimental and didn't mean that television was ready.

Encouraged by the enthusiasm of his lookers-in, Jenkins in 1929 built a more powerful station in a Washington suburb and started construction of a television set manufacturing plant in Jersey City which would have a radiovision station on its roof. Jenkins Television Corporation was then controlled by radio pioneer, Lee DeForest's DeForest Radio Company, which built its own Jenkins type station in Passaic, N.J. By 1930, Jenkins' radiomovies were being shown in half-tone reproduction, with 60 breath-taking lines of detail, and his stations occasionally transmitted live pictures. He even constructed a "portable" radiovision station and broadcast live pictures directly from an airplane.

One enterprising amateur in London picked up a telecast direct form Jenkins' Jersey City transmitter. Another wrote Television News from Flushing, N.Y.: "A few weeks ago, W2XCR televised four girl singers and the tallest girl was the best looking one . . . In each case the teeth could really be seen." An experimenter contributed an article to Television News entitled "How We Received W3XK Images in Kansas."

Jenkins Television Corporation was in full production, advertising sophisticated whirling-disc receivers in build-it-yourself kit form for $42.50, or a ready-built "living-room model in de-luxe walnut cabinet" for $100 (neon lamp extra). In Chicago, one newspaper TV listing read: "This program features ballet dancers, tap dancers, harmony singers; sometimes it carries tumbling acts, miniature minstrel shows and a Scotch Highlander act in costume." Not quite Ed Sullivan, but close.

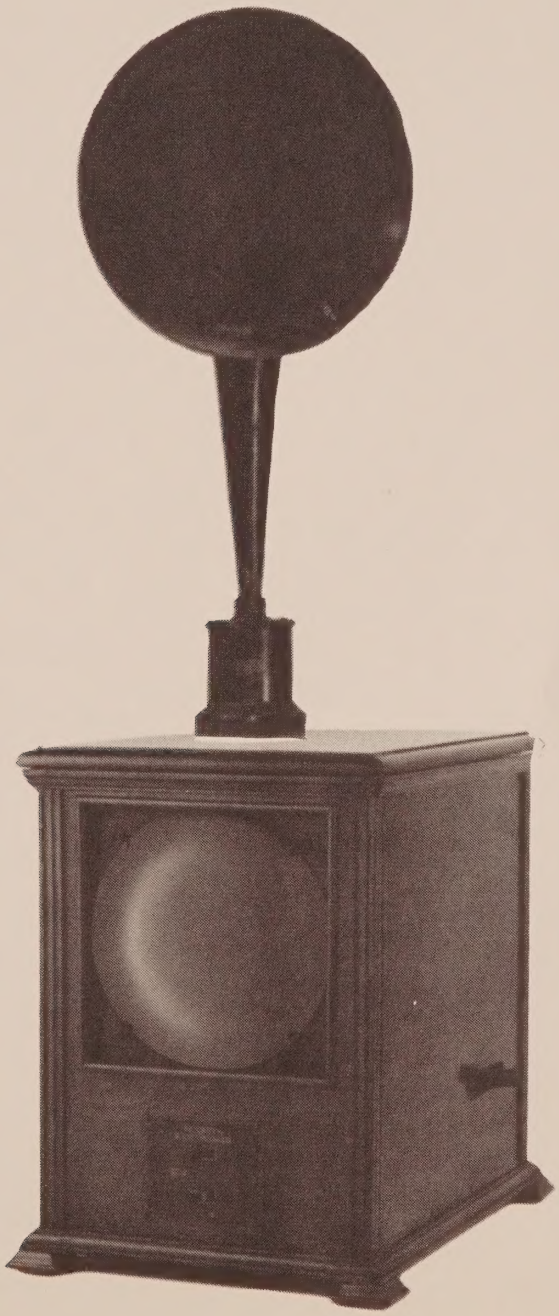
Meanwhile, Jenkins' lookers-in were reading in their hobby magazines and in the newspapers about a proposed new kind of television. Based on developments by Vladimir Zworykin and Philo Farnsworth, it was to use electronic tubes for both camera and viewing device, eliminating the whirling discs.

Major technical corporations—including GE, NBC and CBS—were on the air with sporadic experimental telecasts using various systems. Unlike Jenkins and DeForest, they didn't encourage the cooperation of the amateur. "The present type of television transmission," wrote NBC's general engineer C.W. Horn in answer to an inquiry from Television News, "is

so crude, even the best, that it has very little program value . . . . I am interested in improving the equipment so that some day we may have something worth-while."

Answering some stockholders' demands for immediate commercial video broadcasting, RCA president David Sarnoff told the company's 1931 annual meeting: "Television promises another great development, but to assure this we cannot disappoint the public and defeat the possibilities of a future great service by hasty and premature action at the present time."

Charles Francis Jenkins died in 1933 at the age of 66, earning a respectably restrained obituary on an inside page of The New York Times highlighting his contributions to motion-picture projection. Interest in television then was high only in corporate laboratories. And in most history books on communications, a scant paragraph or footnote is generally devoted to the man who established the first regular television service in the United States and in the world. A man who forecast 42 years ago:



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